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RAW SEQUENCE LISTING  
 PATENT APPLICATION: US/09/724,965

DATE: 12/19/2001  
 TIME: 16:21:10

Input Set : A:\14643-009031US.txt  
 Output Set: N:\CRF3\12192001\I724965.raw

**ENTERED****SEQUENCE LISTING**

4 (1) GENERAL INFORMATION:  
 6 (i) APPLICANT: Lonberg, Nils  
 7 Kay, Robert M.  
 9 (ii) TITLE OF INVENTION: Transgenic Non-Human Animals for  
 10 Producing Heterologous Antibodies  
 12 (iii) NUMBER OF SEQUENCES: 417  
 14 (iv) CORRESPONDENCE ADDRESS:  
 15 (A) ADDRESSEE: Townsend and Townsend and Crew LLP  
 16 (B) STREET: Two Embarcadero Center, Eighth Floor  
 17 (C) CITY: San Francisco  
 18 (D) STATE: California  
 19 (E) COUNTRY: USA  
 20 (F) ZIP: 94111-3834  
 22 (v) COMPUTER READABLE FORM:  
 23 (A) MEDIUM TYPE: Floppy disk  
 24 (B) COMPUTER: IBM PC compatible  
 25 (C) OPERATING SYSTEM: PC-DOS/MS-DOS  
 26 (D) SOFTWARE: PatentIn Release #1.0, Version #1.30  
 28 (vi) CURRENT APPLICATION DATA:  
 C--> 29 (A) APPLICATION NUMBER: US/09/724,965  
 C--> 30 (B) FILING DATE: 28-Nov-2000  
 31 (C) CLASSIFICATION:  
 102 (vii) PRIOR APPLICATION DATA:  
 35 (A) APPLICATION NUMBER: US 08/758,417  
 36 (B) FILING DATE: 02-DEC-1996  
 39 (A) APPLICATION NUMBER: US 08/728,463  
 40 (B) FILING DATE: 10-OCT-1996  
 43 (A) APPLICATION NUMBER: US 08/544,404  
 44 (B) FILING DATE: 10-OCT-1995  
 47 (A) APPLICATION NUMBER: US 08/352,322  
 48 (B) FILING DATE: 07-DEC-1994  
 51 (A) APPLICATION NUMBER: US 08/209,741  
 52 (B) FILING DATE: 09-MAR-1994  
 55 (A) APPLICATION NUMBER: US 08/165,699  
 56 (B) FILING DATE: 10-DEC-1993  
 59 (A) APPLICATION NUMBER: US 08/161,739  
 60 (B) FILING DATE: 03-DEC-1993  
 63 (A) APPLICATION NUMBER: US 08/155,301  
 64 (B) FILING DATE: 18-NOV-1993  
 67 (A) APPLICATION NUMBER: US 08/096,762  
 68 (B) FILING DATE: 22-JUL-1993  
 71 (A) APPLICATION NUMBER: US 08/053,131  
 72 (B) FILING DATE: 26-APR-1993  
 75 (A) APPLICATION NUMBER: US 07/990,860  
 76 (B) FILING DATE: 16-DEC-1992  
 79 (A) APPLICATION NUMBER: US 07/904,068

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80 (B) FILING DATE: 23-JUN-1992  
 83 (A) APPLICATION NUMBER: US 07/853,408  
 84 (B) FILING DATE: 18-MAR-1992  
 87 (A) APPLICATION NUMBER: US 07/810,279  
 88 (B) FILING DATE: 17-DEC-1991  
 91 (A) APPLICATION NUMBER: US 07/575,962  
 92 (B) FILING DATE: 31-AUG-1990  
 95 (A) APPLICATION NUMBER: US 07/574,748  
 96 (B) FILING DATE: 29-AUG-1990  
 99 (A) APPLICATION NUMBER: WO PCT/US92/10983  
 100 (B) FILING DATE: 29-AUG-1991  
 103 (A) APPLICATION NUMBER: WO PCT/US91/06185  
 104 (B) FILING DATE: 29-AUG-1991  
 106 (viii) ATTORNEY/AGENT INFORMATION:  
 107 (A) NAME: Serafini, Andrew T.  
 108 (B) REGISTRATION NUMBER: 41,303  
 109 (C) REFERENCE/DOCKET NUMBER: 014643-009030US  
 111 (ix) TELECOMMUNICATION INFORMATION:  
 112 (A) TELEPHONE: (415) 576-0200  
 113 (B) TELEFAX: (415) 576-0300  
 116 (2) INFORMATION FOR SEQ ID NO: 1:  
 118 (i) SEQUENCE CHARACTERISTICS:  
 119 (A) LENGTH: 10 base pairs  
 120 (B) TYPE: nucleic acid  
 121 (C) STRANDEDNESS: single  
 122 (D) TOPOLOGY: linear  
 W--> 124 (ii) MOLECULE TYPE: DNA  
 127 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:  
 129 CTAADTG GGGG  
 132 (2) INFORMATION FOR SEQ ID NO: 2:  
 134 (i) SEQUENCE CHARACTERISTICS:  
 135 (A) LENGTH: 5 amino acids  
 136 (B) TYPE: amino acid  
 137 (C) STRANDEDNESS:  
 138 (D) TOPOLOGY: linear  
 140 (ii) MOLECULE TYPE: peptide  
 143 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:  
 145 Asp Ala Phe Asp Ile  
 146 1 5  
 149 (2) INFORMATION FOR SEQ ID NO: 3:  
 151 (i) SEQUENCE CHARACTERISTICS:  
 152 (A) LENGTH: 5 amino acids  
 153 (B) TYPE: amino acid  
 154 (C) STRANDEDNESS:  
 155 (D) TOPOLOGY: linear  
 157 (ii) MOLECULE TYPE: peptide  
 160 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:  
 162 Asp Tyr Phe Asp Tyr  
 163 1 5

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166 (2) INFORMATION FOR SEQ ID NO: 4:
168     (i) SEQUENCE CHARACTERISTICS:
169         (A) LENGTH: 5 amino acids
170         (B) TYPE: amino acid
171         (C) STRANDEDNESS:
172         (D) TOPOLOGY: linear
174     (ii) MOLECULE TYPE: peptide
177     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:
179     Gly Ala Phe Asp Ile
180         1           5
183 (2) INFORMATION FOR SEQ ID NO: 5:
185     (i) SEQUENCE CHARACTERISTICS:
186         (A) LENGTH: 4 amino acids
187         (B) TYPE: amino acid
188         (C) STRANDEDNESS:
189         (D) TOPOLOGY: linear
191     (ii) MOLECULE TYPE: peptide
194     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:
196     Lys Glu Arg Val
197         1
200 (2) INFORMATION FOR SEQ ID NO: 6:
202     (i) SEQUENCE CHARACTERISTICS:
203         (A) LENGTH: 4 amino acids
204         (B) TYPE: amino acid
205         (C) STRANDEDNESS:
206         (D) TOPOLOGY: linear
208     (ii) MOLECULE TYPE: peptide
211     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:
213     Asn Asp Ser Val
214         1
217 (2) INFORMATION FOR SEQ ID NO: 7:
219     (i) SEQUENCE CHARACTERISTICS:
220         (A) LENGTH: 12 base pairs
221         (B) TYPE: nucleic acid
222         (C) STRANDEDNESS: single
223         (D) TOPOLOGY: linear
W--> 225     (ii) MOLECULE TYPE: RNA
228     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:
230     AAAGAAAGAG UU                                     12
233 (2) INFORMATION FOR SEQ ID NO: 8:
235     (i) SEQUENCE CHARACTERISTICS:
236         (A) LENGTH: 12 base pairs
237         (B) TYPE: nucleic acid
238         (C) STRANDEDNESS: single
239         (D) TOPOLOGY: linear
W--> 241     (ii) MOLECULE TYPE: RNA
244     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:
246     AACGACAGCG UU                                     12
249 (2) INFORMATION FOR SEQ ID NO: 9:

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251      (i) SEQUENCE CHARACTERISTICS:
252      (A) LENGTH: 15 base pairs
253      (B) TYPE: nucleic acid
254      (C) STRANDEDNESS: single
255      (D) TOPOLOGY: linear
W--> 257      (ii) MOLECULE TYPE: DNA
260      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:
262 GAGCTGAGCT GGGGT                                     15
265 (2) INFORMATION FOR SEQ ID NO: 10:
267      (i) SEQUENCE CHARACTERISTICS:
268      (A) LENGTH: 20 base pairs
269      (B) TYPE: nucleic acid
270      (C) STRANDEDNESS: single
271      (D) TOPOLOGY: linear
W--> 273      (ii) MOLECULE TYPE: DNA
276      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:
278 GAGCTGAGCT GAGCTGGGGT                                 20
281 (2) INFORMATION FOR SEQ ID NO: 11:
283      (i) SEQUENCE CHARACTERISTICS:
284      (A) LENGTH: 25 base pairs
285      (B) TYPE: nucleic acid
286      (C) STRANDEDNESS: single
287      (D) TOPOLOGY: linear
W--> 289      (ii) MOLECULE TYPE: DNA
292      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:
294 GAGCTGAGCT GAGCTGAGCT GGGGT                           25
297 (2) INFORMATION FOR SEQ ID NO: 12:
299      (i) SEQUENCE CHARACTERISTICS:
300      (A) LENGTH: 30 base pairs
301      (B) TYPE: nucleic acid
302      (C) STRANDEDNESS: single
303      (D) TOPOLOGY: linear
W--> 305      (ii) MOLECULE TYPE: DNA
308      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:
310 GAGCTGAGCT GAGCTGAGCT GAGCTGGGGT                       30
313 (2) INFORMATION FOR SEQ ID NO: 13:
315      (i) SEQUENCE CHARACTERISTICS:
316      (A) LENGTH: 35 base pairs
317      (B) TYPE: nucleic acid
318      (C) STRANDEDNESS: single
319      (D) TOPOLOGY: linear
W--> 321      (ii) MOLECULE TYPE: DNA
324      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:
326 GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GGGGT                 35
329 (2) INFORMATION FOR SEQ ID NO: 14:
331      (i) SEQUENCE CHARACTERISTICS:
332      (A) LENGTH: 40 base pairs
333      (B) TYPE: nucleic acid
334      (C) STRANDEDNESS: single

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335          (D) TOPOLOGY: linear
W--> 337      (ii) MOLECULE TYPE: DNA
340          (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:
342 GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGGGGT      40
345 (2) INFORMATION FOR SEQ ID NO: 15:
347      (i) SEQUENCE CHARACTERISTICS:
348          (A) LENGTH: 45 base pairs
349          (B) TYPE: nucleic acid
350          (C) STRANDEDNESS: single
351          (D) TOPOLOGY: linear
W--> 353      (ii) MOLECULE TYPE: DNA
356          (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:
358 GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GGGGT      45
361 (2) INFORMATION FOR SEQ ID NO: 16:
363      (i) SEQUENCE CHARACTERISTICS:
364          (A) LENGTH: 50 base pairs
365          (B) TYPE: nucleic acid
366          (C) STRANDEDNESS: single
367          (D) TOPOLOGY: linear
W--> 369      (ii) MOLECULE TYPE: DNA
372          (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:
374 GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGGGGT      50
377 (2) INFORMATION FOR SEQ ID NO: 17:
379      (i) SEQUENCE CHARACTERISTICS:
380          (A) LENGTH: 55 base pairs
381          (B) TYPE: nucleic acid
382          (C) STRANDEDNESS: single
383          (D) TOPOLOGY: linear
W--> 385      (ii) MOLECULE TYPE: DNA
388          (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:
390 GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GGGGT      55
393 (2) INFORMATION FOR SEQ ID NO: 18:
395      (i) SEQUENCE CHARACTERISTICS:
396          (A) LENGTH: 60 base pairs
397          (B) TYPE: nucleic acid
398          (C) STRANDEDNESS: single
399          (D) TOPOLOGY: linear
W--> 401      (ii) MOLECULE TYPE: DNA
404          (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:
406 GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGGGGT      60
409 (2) INFORMATION FOR SEQ ID NO: 19:
411      (i) SEQUENCE CHARACTERISTICS:
412          (A) LENGTH: 65 base pairs
413          (B) TYPE: nucleic acid
414          (C) STRANDEDNESS: single
415          (D) TOPOLOGY: linear
W--> 417      (ii) MOLECULE TYPE: DNA
420          (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:
422 GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT GAGCTGAGCT      60

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VERIFICATION SUMMARY  
PATENT APPLICATION: US/09/724,965

DATE: 12/19/2001  
TIME: 16:21:11

Input Set : A:\14643-009031US.txt  
Output Set: N:\CRF3\12192001\I724965.raw

L:29 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]  
L:30 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]  
L:124 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=1  
L:225 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=7  
L:241 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=8  
L:257 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=9  
L:273 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=10  
L:289 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=11  
L:305 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=12  
L:321 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=13  
L:337 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=14  
L:353 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=15  
L:369 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=16  
L:385 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=17  
L:401 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=18  
L:417 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=19  
L:435 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=20  
L:453 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=21  
L:471 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=22  
L:489 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=23  
L:507 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=24  
L:525 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=25  
L:541 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=26  
L:557 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=27  
L:573 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=28  
L:589 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=29  
L:605 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=30  
L:621 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=31  
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L:653 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=33  
L:669 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=34  
L:685 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=35  
L:701 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=36  
L:717 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=37  
L:733 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=38  
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L:781 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=41  
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L:845 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=45  
L:861 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=46  
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L:909 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=49  
L:925 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=50  
L:941 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=51

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L:957 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=52  
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L:989 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=54  
L:1005 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=55  
L:6160 M:361 W: Invalid Split Codon, Sequence data for SEQ ID#: 306